

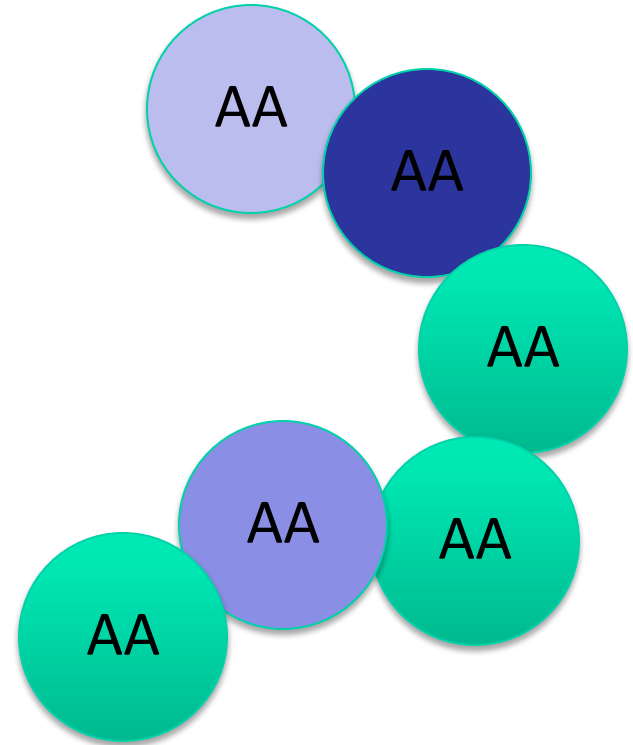
Introduction to Enzymes

Review Macromolecules

- Proteins → amino acids
- Carbohydrates → sugars
 - (monosaccharides, polysaccharides, glucose)
- Lipids → fatty acids and a glycerol
- Nucleotides → nucleic acids

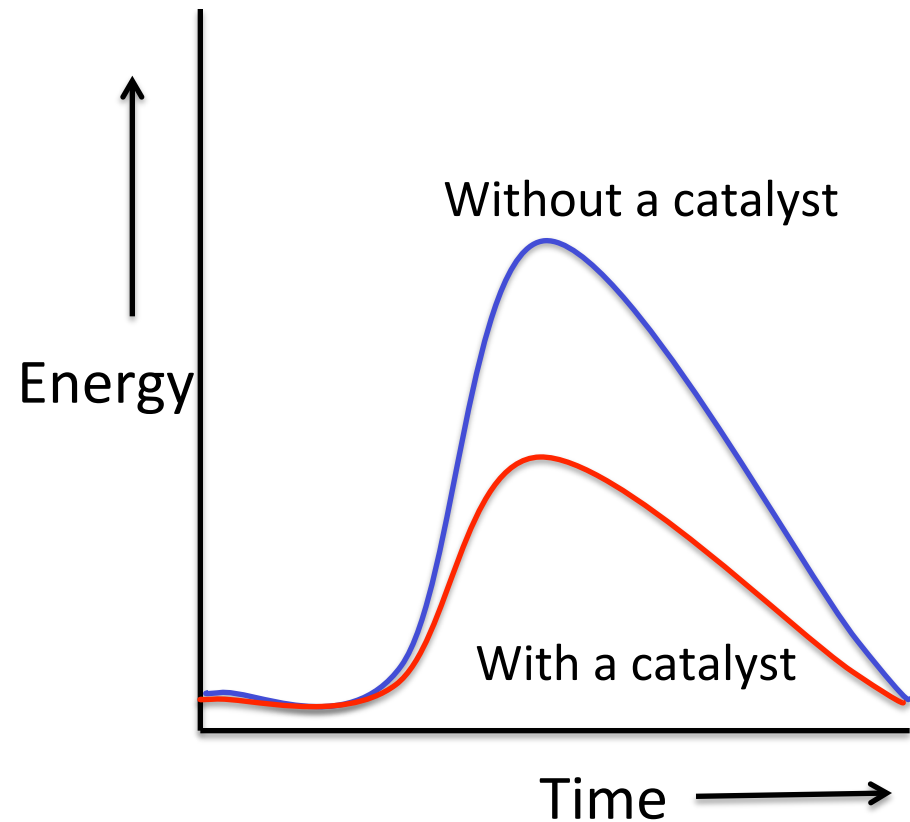
Proteins

- Chains of amino acids
- Many proteins are enzymes
- Enzymes catalyze chemical reactions



Enzymes as catalysts

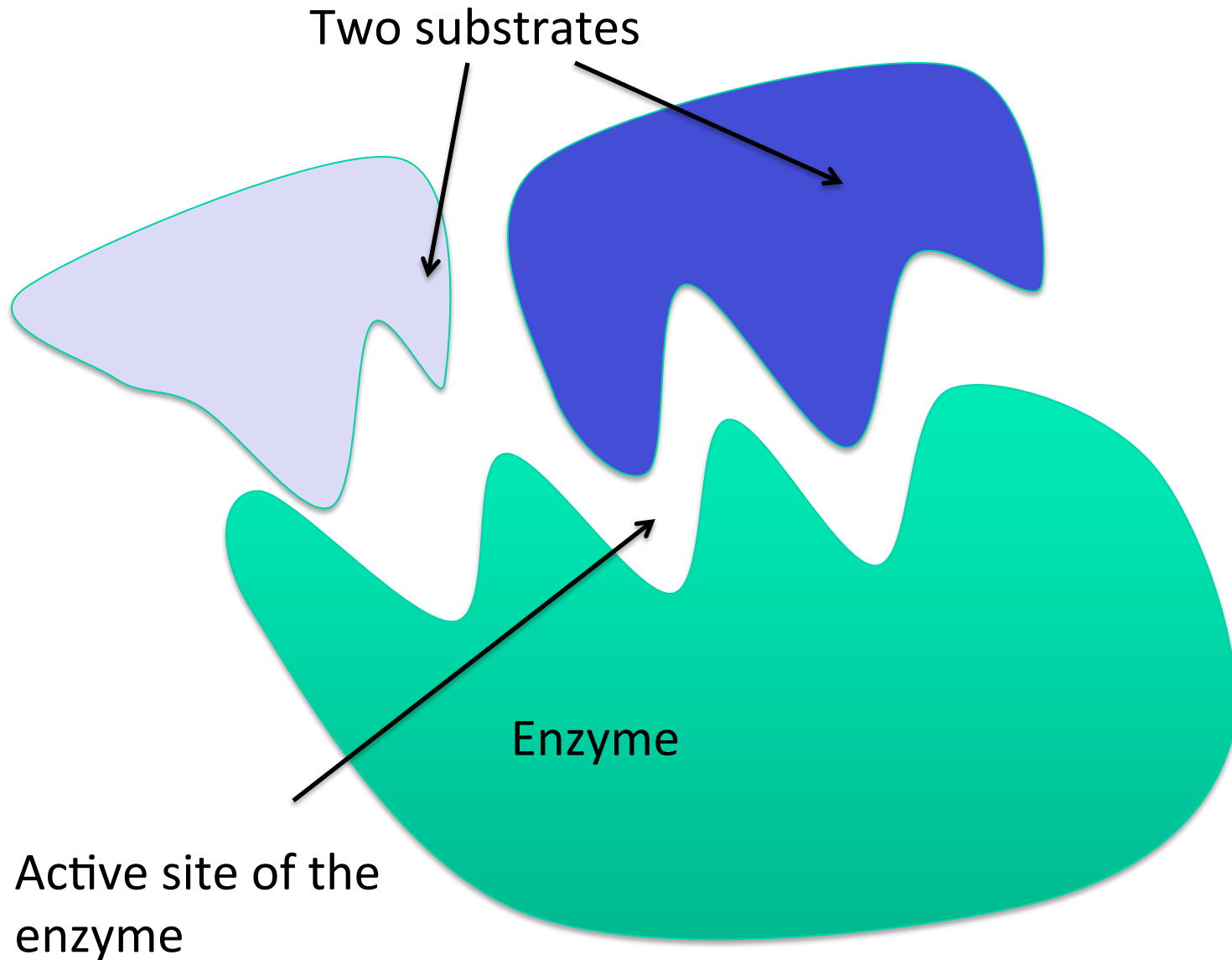
- Catalyst - Speeds up chemical reactions in living organisms by decreasing the energy needed to start the reaction (activation energy)



Definitions

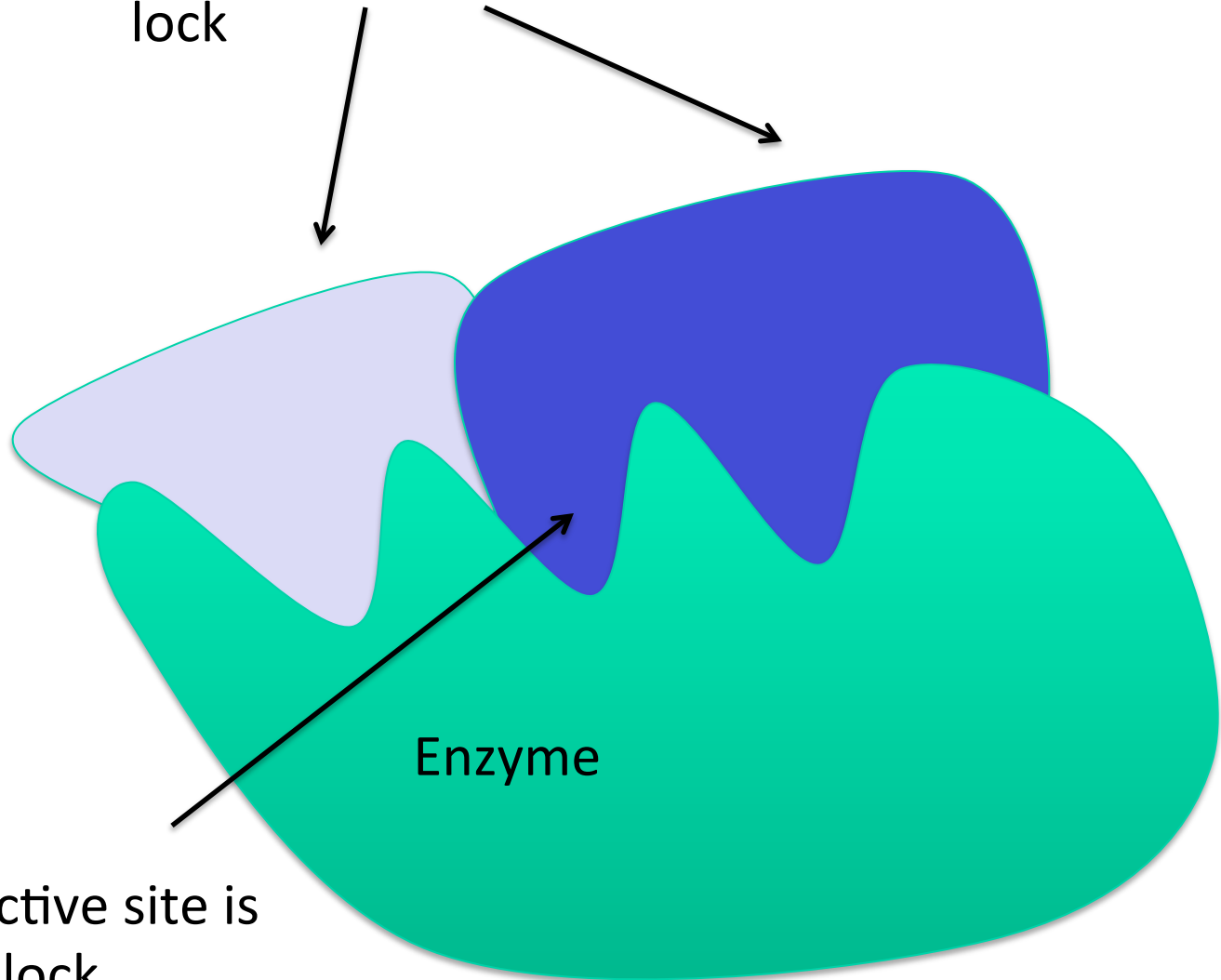
- **Substrate**- monomers that bind to the active site of an enzyme
- **Active site**- area on enzyme where substrate binds
- **Product**- what the enzyme produces

Lock and Key Model



Lock and Key Model

The substrates fit like a key in a lock

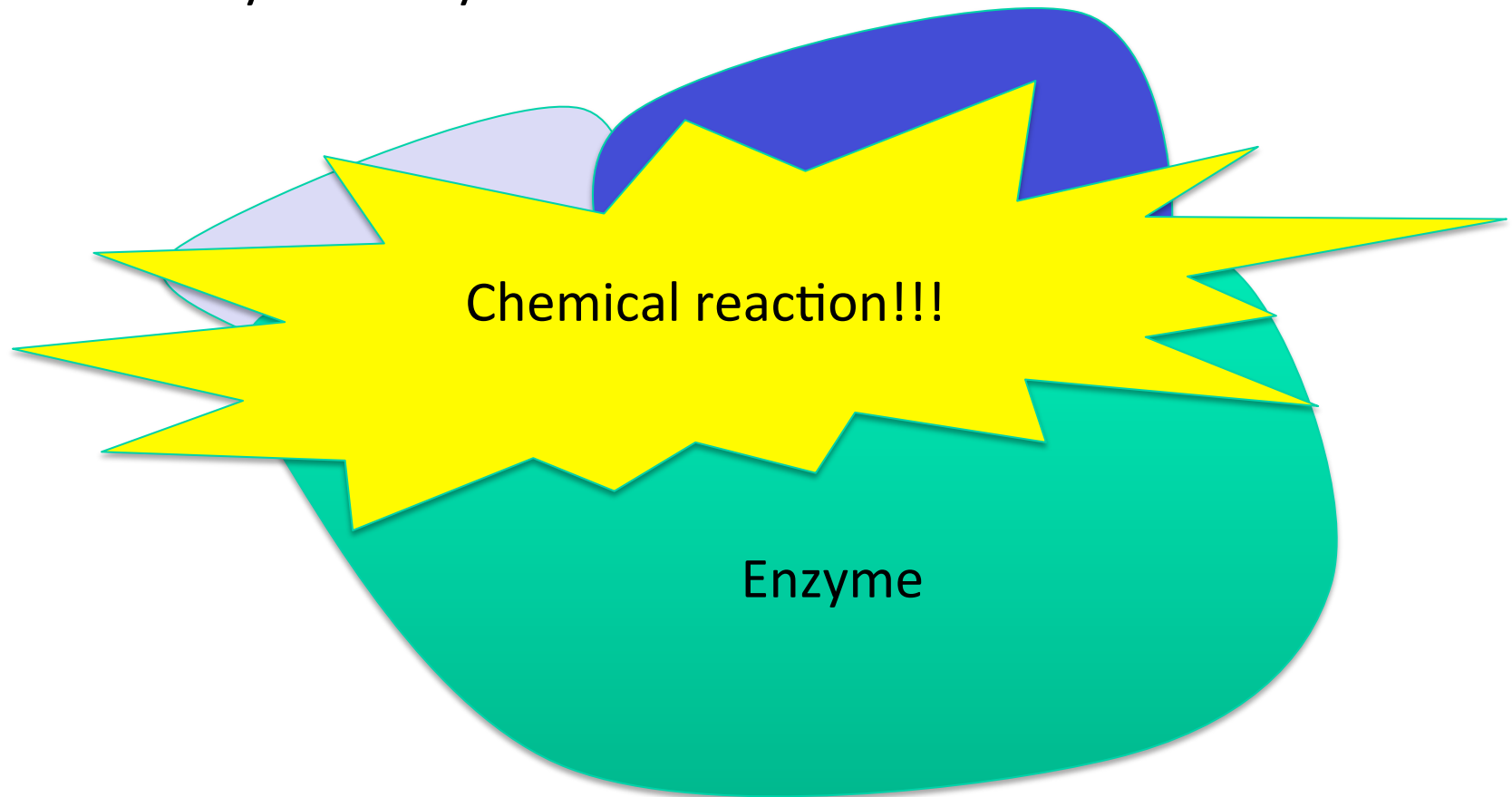


The active site is like a lock

Enzyme

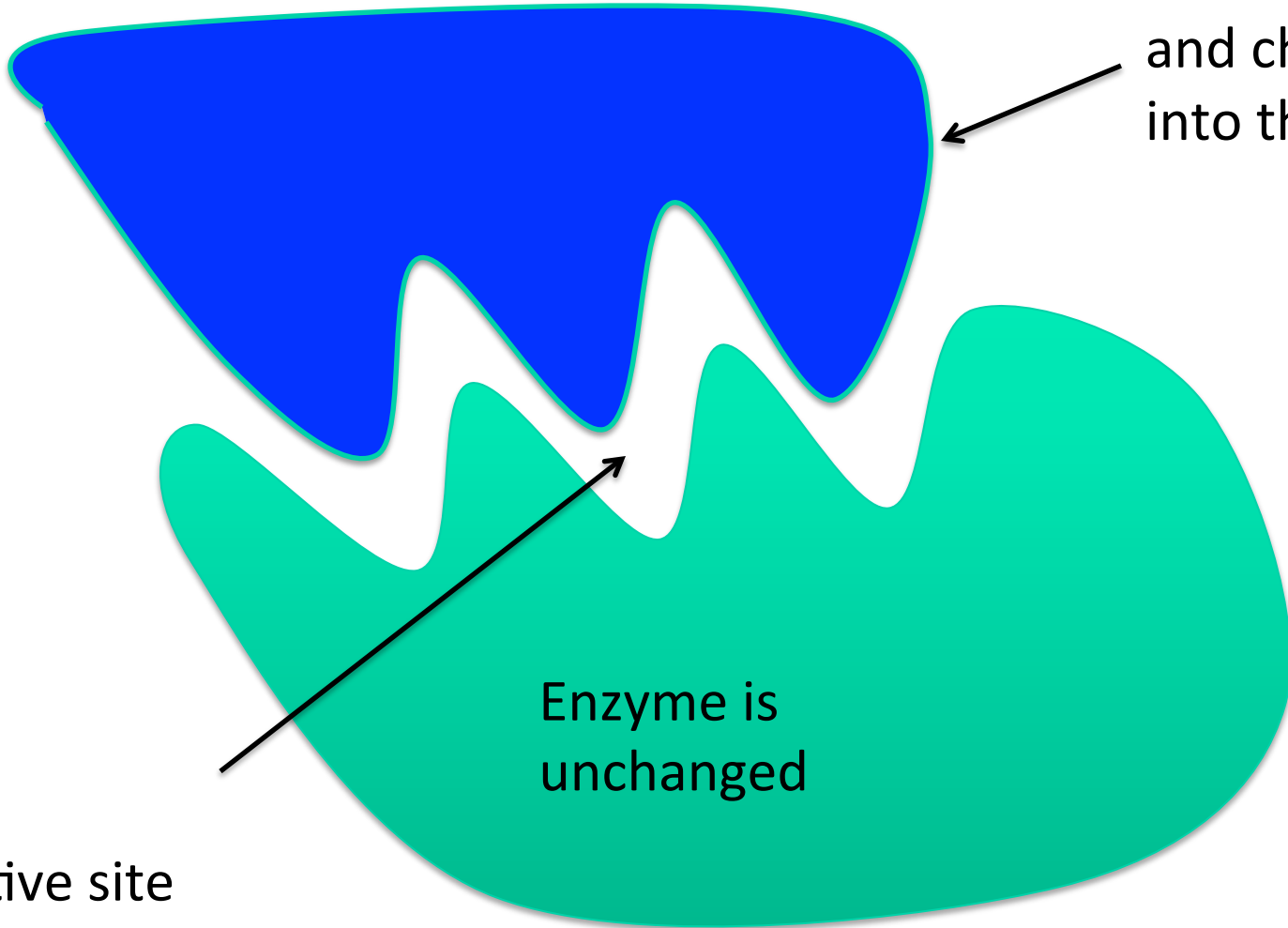
Lock and Key Model

The activation energy for these substrates to bind together has been lowered by the enzyme.



Basic Enzyme Diagram

The substrates
have reacted
and changed
into the product



Enzyme is
unchanged

Active site

In Biology when a word ends in –ase it is more than likely it's an enzyme.

Guess what polymers are broken down by these enzymes and what monomers are created?

Polymer

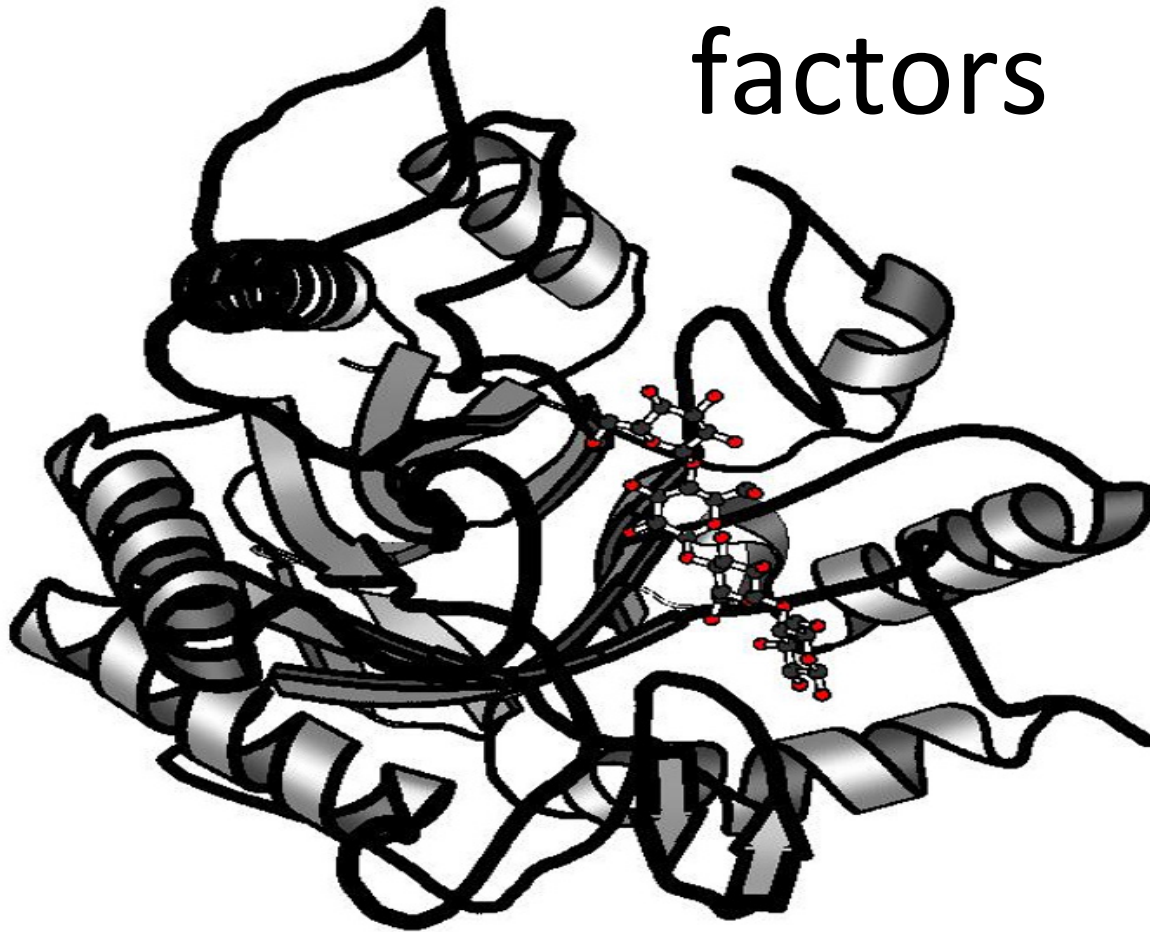
Monomer

• Protease _____

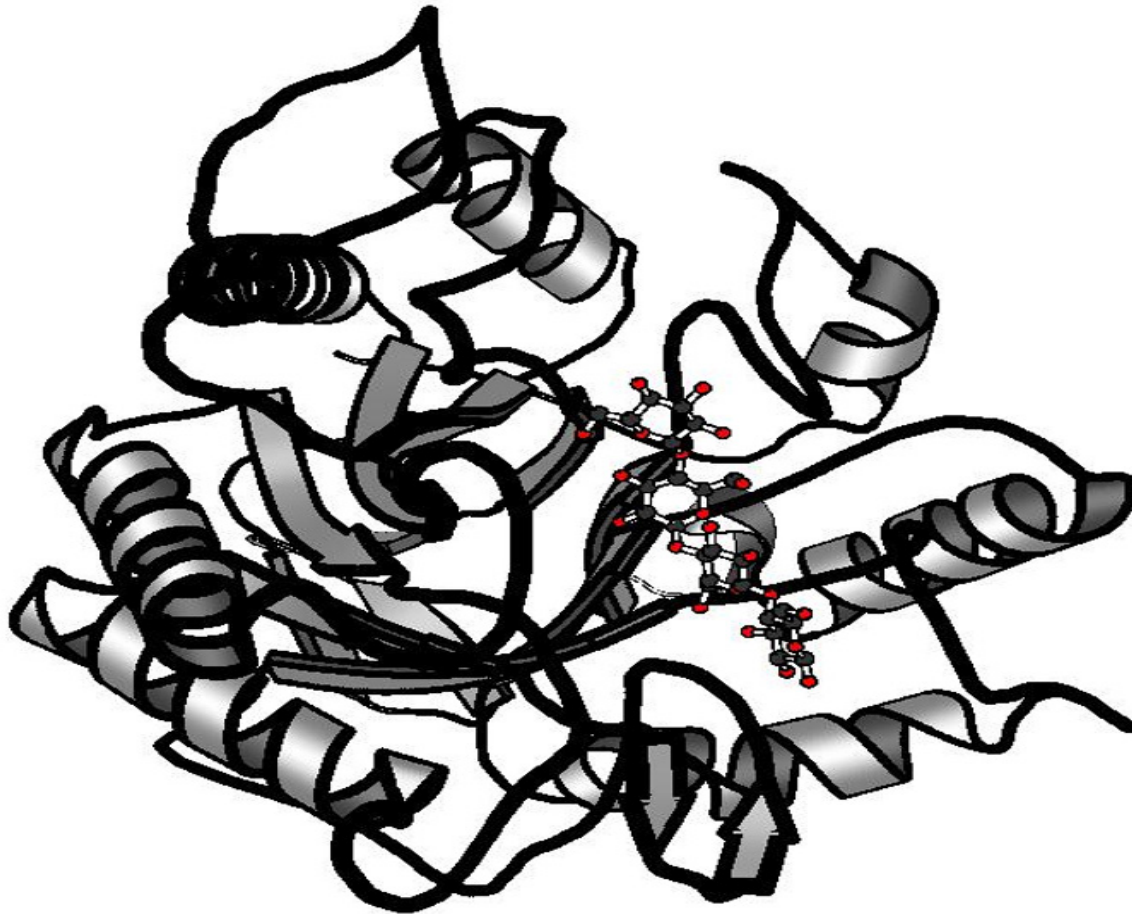
• Sucrase _____

• Lipase _____

Enzymes are very complex structures whose shapes and functions can be affected by many factors

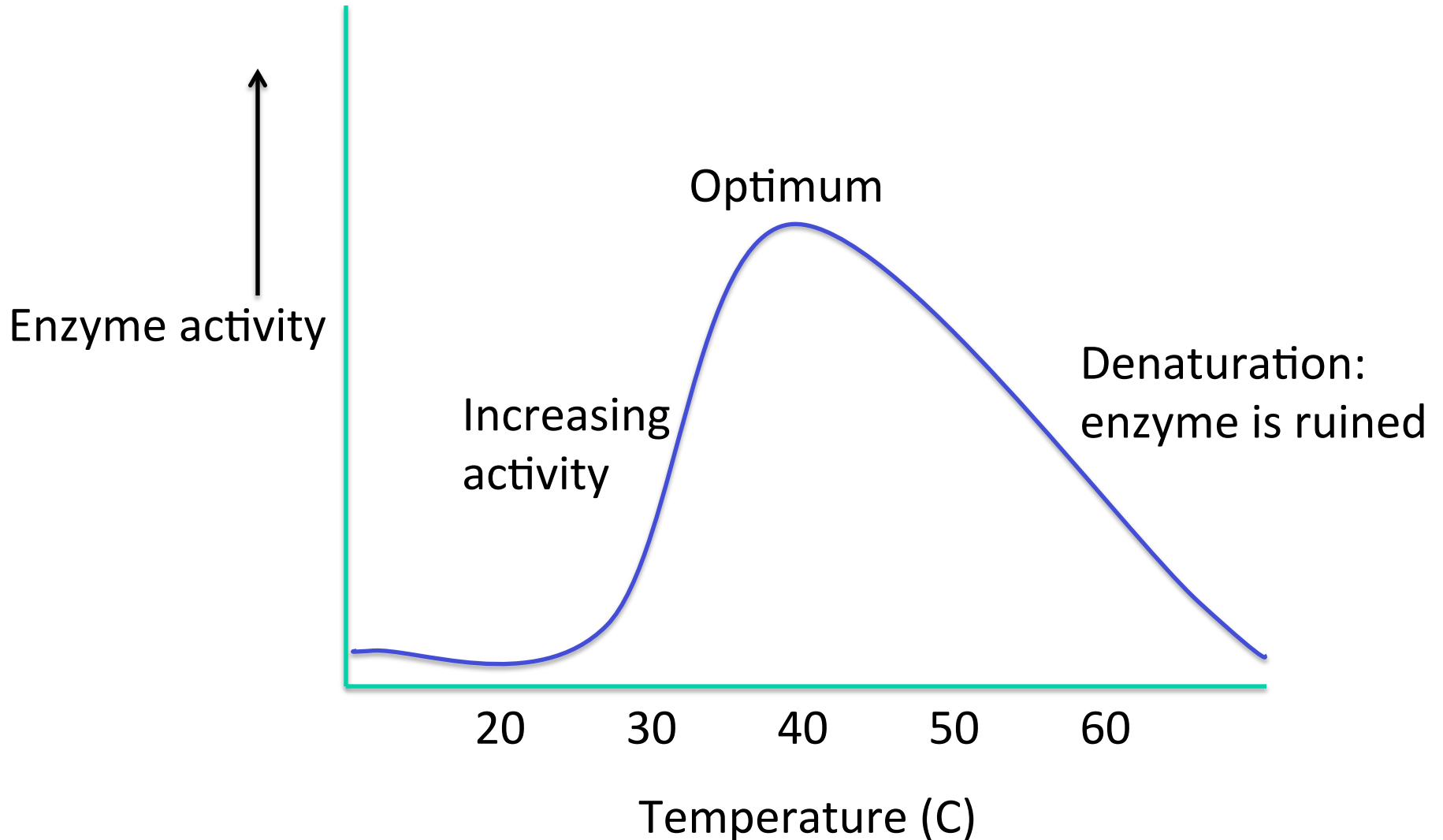


What factors affect enzyme function?



pH
Temperature

Graphing enzyme activity



The optimal temperature for this enzyme is _____

